AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/188,399
Filing Date: November 6, 1998
Title: AUTOMATED FINITE CAPACITY SCHEDULER

Page 2
Dkt: H16-17367 (256.029US1)

5.   The method of claim 1 and further comprising defining discrete and continuous constraints related to the activities based on requirements of the tasks.

6.   The method of claim 5 wherein activities are assigned start and end times.

7.   The method of claim 5 wherein activities are scheduled based on deadlines.

8.   The method of claim 5 wherein the requirements of the task comprise identification of resources required to perform the task.

9.   The method of claim 8 wherein activities are assigned resources based on a resource balancing heuristic.

10.   The method of claim 1 and further comprising identifying infeasibilities during the scheduling of activities.

11.   The method of claim 10 and further comprising identifying a culprit activity when an infeasibility is identified.

12.   The method of claim 11 and further comprising chronological backtracking to the culprit activity which resulted in an infeasibility.

13.   The method of claim 1 and further comprising identifying suboptimalities during the scheduling of activities and identifying culprit activities causing the suboptimalities.

14.   A method of scheduling activities comprising:
    defining discrete and continuous constraints related to the activities;
    representing selected scheduling decisions as discrete and continuous constraints; and
    scheduling activities in accordance with an integrated implications of the discrete and continuous constraints.

15.   The method of claim 14 and further comprising:

scheduling activities in accordance with previous scheduling decision constraints;

identifying infeasibilities during the scheduling of activities; and .

scheduling activities in accordance with identified infeasibilities.

16.   The method of claim 15 and further comprising:

identifying a culprit activity which resulted in an infeasibility.

backtracking to the culprit and rescheduling the culprit activity.

17.   The method of claim 16 and further comprising identifying a culprit activity which resulted in a suboptimality.

18.   The method of claim 16 wherein the backtracking comprises chronological backtracking or dynamic backtracking.

19.   A method of modifying scheduled tasks comprising:

updating information related to the scheduled tasks;

modifying a list of activities required to accomplish the tasks based on the updated information;

optionally modifying the activities into sets of smaller activities;

modifying discrete constraints related to the activities;

modifying continuous constraints related to the activities; and

scheduling the activities and smaller activities based on discrete and continuous constraints.

20. (Cancelled)   A method of handling discrete constraints comprising:

assigning discrete variables;

generating constraints based on legal combinations of discrete-valued variables;

checking consistency of discrete variable assignments;

propagating discrete variable assignments based on discrete constraints; and

identifying culprit based on inconsistent discrete variable assignments.

21. (Cancelled)   A method of handling continuous constraints comprising:

assigning continuous variables;

generating constraints based on mathematical relations between continuous-valued variables;

propagating continuous constraints;

checking for consistency of continuous constraints;

identifying culprit activities which are inconsistent with continuous constraints; and

assigning continuous variables to consistent continuous constraints

22. (Cancelled)   A method of analyzing integrated implications of discrete and continuous constraints comprising:

assigning discrete variables;

generating constraints based on legal combinations of discrete-valued variables;

checking consistency of discrete variable assignments;

propagating discrete variable assignments based on discrete constraints;

identifying culprit based on inconsistent discrete variable assignments;

assigning continuous variables;

generating constraints based on mathematical relations between continuous-valued variables;

propagating continuous constraints;

checking for consistency of continuous constraints;

identifying culprit activities which are inconsistent with continuous constraints;

assigning continuous variables to consistent continuous constraints;

assigning decision variables;

associating decision variable assignments with discrete variable assignments and constraints;

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/188,399
Filing Date: November 6, 1998
Title: AUTOMATED FINITE CAPACITY SCHEDULER

Page 5
Dkt: H16-17367 (256.029US1)

associating decision variable assignments with continuous variable constraints;

associating discrete variable assignments with continuous variable constraints; and

identifying culprit activities based on association of decision variable assignments with continuous variable constraints, discrete variable assignments, and discrete variable constraints.

23. (Cancelled)   A machine readable medium have instructions stored thereon for causing a computer to perform the method of claim 22.

24. (Cancelled)   The method of claim 22 and further comprising:

incrementally adding and deleting continuous constraints;

incrementally adding and deleting discrete variable assignments and constraints;

maintaining global consistency between discrete and continuous constraints; and

deleting discrete and continuous constraints and discrete variable assignments
    associated with a decision variable assignment.

25. (Cancelled) The method of claim 24 and further comprising using linear mathematical relationships in continuous constraints.

26. (Cancelled) The method of claim 24 and further comprising assigning continuous variables using an optimization of an objective function.

27. A machine readable medium have computer executable instruction stored thereon for causing a computer to perform a method of scheduling tasks comprising:

creating a list of activities required to accomplish the tasks;

modifying selected activities into sets of smaller activities; and

scheduling the activities and smaller activities based on discrete and continuous constraints.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/188,399
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Title: AUTOMATED FINITE CAPACITY SCHEDULER

Page 6
Dkt: H16-17367 (256.029US1)

28.   A machine readable medium have computer executable instruction stored thereon for causing a computer to perform a method of scheduling activities comprising:

defining discrete and continuous constraints related to the activities;

representing selected scheduling decisions as discrete and continuous constraints; and

scheduling activities in accordance with an integrated implications of the discrete and continuous constraints.

29.   A machine readable medium have computer executable instruction stored thereon for causing a computer to perform a method of modifying scheduled tasks comprising:

updating information related to the scheduled tasks;

modifying a list of activities required to accomplish the tasks based on the updated information;

optionally modifying the activities into sets of smaller activities;

modifying discrete constraints related to the activities;

modifying continuous constraints related to the activities; and

scheduling the activities and smaller activities based on discrete and continuous constraints.

30. (Cancelled)   A machine readable medium have computer executable instruction stored thereon for causing a computer to perform a method of handling discrete constraints comprising:

assigning discrete variables;

generating constraints based on legal combinations of discrete-valued variables;

checking consistency of discrete variable assignments;

propagating discrete variable assignments based on discrete constraints; and

identifying culprit based on inconsistent discrete variable assignments.

31. (Cancelled)   A machine readable medium have computer executable instruction stored thereon for causing a computer to perform a method of handling continuous constraints comprising:

assigning continuous variables;

generating constraints based on mathematical relations between continuous-valued variables;

propagating continuous constraints;

checking for consistency of continuous constraints;

identifying culprit activities which are inconsistent with continuous constraints; and

assigning continuous variables to consistent continuous constraints

32.   A system for scheduling tasks comprising:

a continuous constraint solver engine;

a discrete constraint solver engine; and

means for integrating the engines to schedule activities to accomplish the tasks taking into account both continuous constraints and discrete constraints.

33.   A system for scheduling tasks comprising:

means for creating a list of activities required to accomplish the tasks;

means for modifying the activities into sets of smaller activities; and

means for scheduling the activities and smaller activities based on discrete and continuous constraints.

34.   A system for scheduling tasks comprising:

a constraint module that defines discrete and continuous constraints related to the activities;

a module that represents scheduling decisions as discrete and continuous constraints; and

a scheduling module that schedules activities in accordance with an integrated implications of the discrete and continuous constraints.